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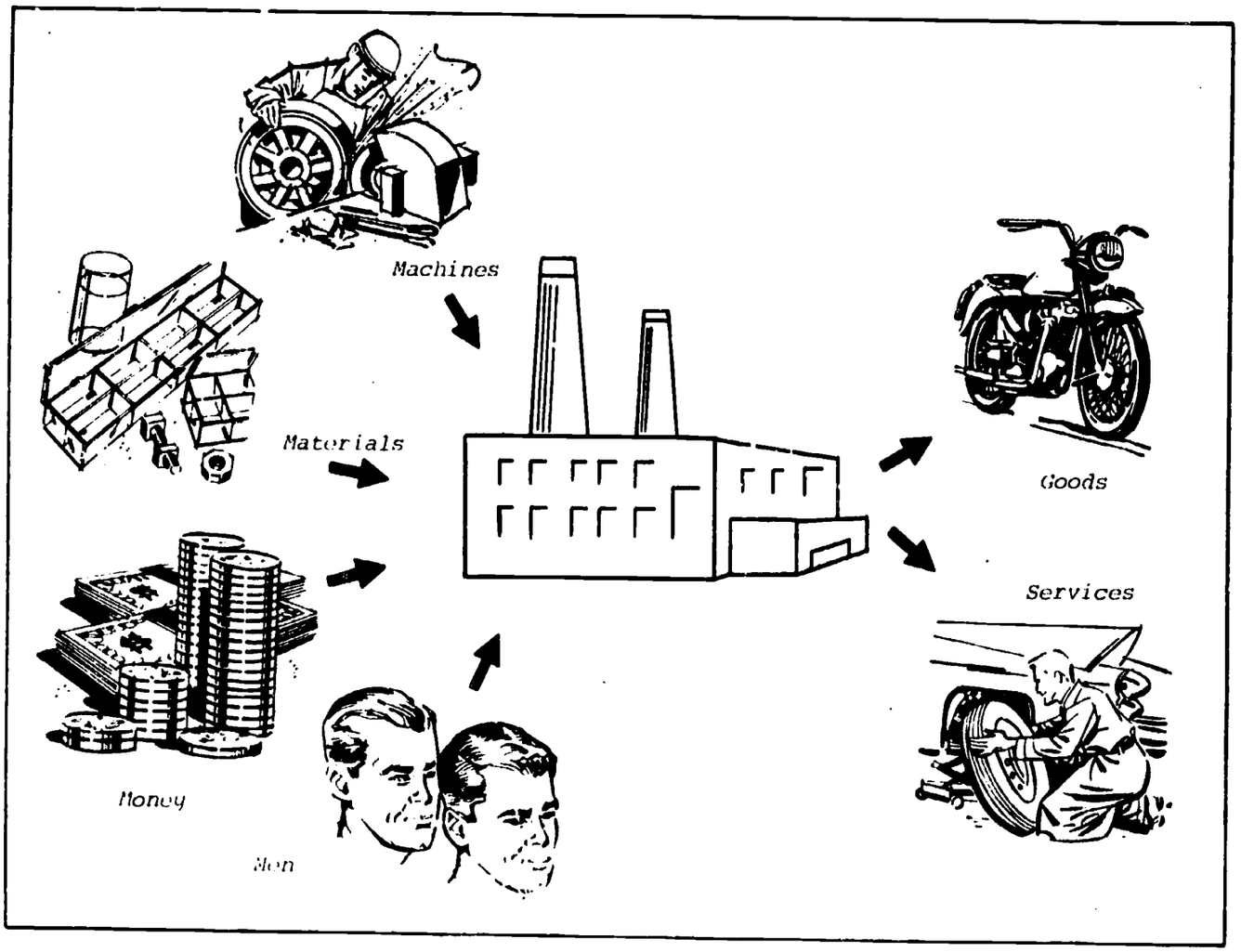
ABSTRACT

The intent of this field tested instructional package is to acquaint the student with the elements of communications and how they function in the production of goods and services. Defining behavioral objectives, the course description includes a media guide, suggested classroom activities, and sample student evaluation forms, as well as the basic information section. A definition of communications and the importance of accurate communications is stressed. Also included is an explanation of why it is so important for industry to coordinate communications in four areas: man to man, man to machine, machine to man, and machine to machine. (Author/MW)

WHAT IS COMMUNICATIONS



Prepared as an Aid in Implementing
The Wisconsin Guide to Local Curriculum
Improvement in Industrial Education, K-12

Learning Activity Package

Prepared as an Aid in Implementing
The Wisconsin Guide to Local Curriculum
Improvement in Industrial Education, K-12

Communications

Junior-Middle High School

Pertaining to Field Objective Number One

"To work with the communications element of industry to gain an understanding of how they function in producing goods and services."

Produced by

The Industrial Education Instructional
Materials Development Project
University of Wisconsin-Stout
Menomonie, Wisconsin

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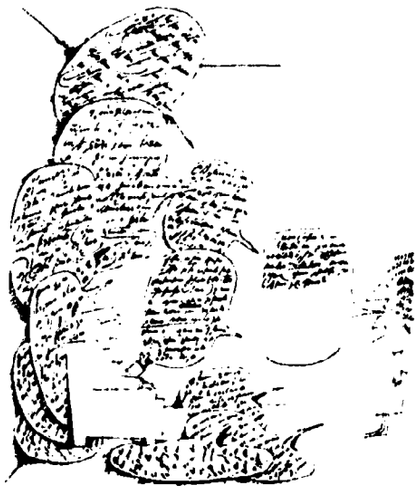
The Graduate College and the Center for Vocational,
Technical and Adult Education, both of the
University of Wisconsin-Stout

RATIONALE:

If you stopped to think, "Would there be much enjoyment to life without some form of communication?" There would be no television to watch, books to read, or even conversation with your friends or family. Also, if proper communications do not exist, how do you get things done with others. If you couldn't accurately communicate in some fashion, "How would you get an allowance or job, how could you talk on the telephone, or could you order a pair of slacks from a catalogue?" These are some ideas to consider!!!



The purpose of this package is to work with the communication elements of industry and to help you gain an understanding of how communications function in producing goods and services.

Please turn to the next page and read the objectives carefully.

OBJECTIVES:

Terminal Objective:

To work with the element of communications in order to gain an understanding of how it functions in producing goods and services.

Enabling Objectives:

At the conclusion of this lesson you will either orally or in writing:

1. Define communications in your own words.
2. Explain the importance of accurate communications anytime a message is sent from one person to another.
3. Display an understanding of why it is so important for industry to coordinate communications of man to man, man to machine, machine to man and machine to machine.

Options: Read the self-test on the following pages and then check the the following selections that apply to you.

_____ If you feel you can meet the objectives at this time:

_____ A. See the instructor for a teacher evaluation.

_____ B. Take the self-test as a self evaluating device, then see your instructor.

_____ If you feel you cannot meet the above objectives:

_____ A. Take the self-test to see what objectives your studying should be based upon, then turn to the media section on page 4.

_____ B. Skip the self-test and turn to the media section on page 4 to help you achieve the objectives.

Self-Test: You may write in this booklet.

1. What is the definition of communications? You may write this in your own words.

2. Why is it important to have accurate communicating procedures anytime a message is being sent from one person to another?

3. Explain and state the importance of coordinating communications between the following: Also list an example of each.

   a. Man to Man -

   b. Man to Machine

   c. Machine to Man -

   d. Machine to Machine -

MEDIA SECTION

Objective Number 1: Define communications in your own words.

Optional Media: Choose one or more.

___ 1. Read pages 5 to 6 of this package.

___ 2. Read Organizing an Industry, American Industry Student Booklet, pages 55-60.

___ 3. Movie: "The Communications Casebook," 15 min., B&W film from Henry Strauss Company, Inc., 31 West 53 Street, N.Y., N.Y. 10019.

Optional Activities: Choose one or more of the following activities included in this package. Activities: Communication - I-1A to 1F.

Objective Number 2: Explain the importance of accurate communications anytime a message is sent from one person to another.

Optional Media: Choose one or more.

___ 1. Read pages 6 to 8 of this package.

___ 2. Read Organizing an Industry, American Industry Student Booklet, pages 55-64.

___ 3. Movie: "Beyond All Barriers," Wisconsin Telephone Company, Milwaukee, Wisconsin

Optional Activities: Choose one or more of the following activities included in this package. Activities: Communications - I-2A to 2E.

Objective Number 3: Display an understanding of why it is important for industry to coordinate communications of man to man, man to machine, machine to man and machine to machine

Optional Media: Choose one or more.

___ 1. Read pages 8 to 12 of this package.

___ 2. Read The Process of Communication by Berla, Holt, Rinehart, and Winston Publishing Company.

Optional Activities: Choose one or more of the following activities included in this package. Activities: Communications - I-3A to 3E.

INFORMATION SECTION

What is Communication?

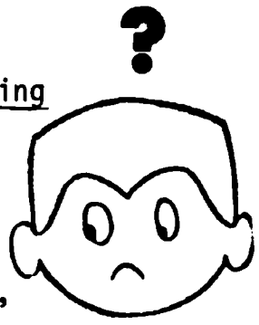
Communication is an interaction resulting from the exchange of ideas and information between men and/or machines. Talking and listening are the simplest ways to communicate. Everyday you use communications when you talk to your family, teachers, and friends. Another simple form of communication is sight. You have probably heard the old saying "that a picture is worth a thousand words." Everyday you use your sight as a means to communicate. You read books, look at maps and movies, see signs and so on.

For those people who cannot hear and speak, there has been developed a language in which they can communicate using a finger language. A system for reading has been developed for the blind. These people can read by running their fingers across pages that have raised letters. This type of reading is called Braille. You have probably seen people communicating using both of these methods.

In order to communicate certain elements must exist. First in order to have an interaction you must be able to convey ideas. How would you describe a horse to an Eskimo who has never seen one? Or, how would you convey the idea of snow to a blind person? These are some extreme examples. Can you think of some common examples of ideas to convey? Think of your other classes; this might give you some ideas.

A second element which must be present if communication is to take place is the use of signs and/or symbols. They exist in various forms. They can be written or spoken words, gestures, pictures, signs, books, etc. But in order to convey an idea we must have a

means of getting this idea to others. This is done by the use of signs and symbols.



The final element in the communication process is affecting behavior. If we do not affect the person's behavior that we are trying to communicate to, how do we know if we are communicating or getting our idea across. By affecting behavior, we should receive a reaction. This is like telling the Eskimo to go get a horse. How can he do this if he doesn't know what one is?

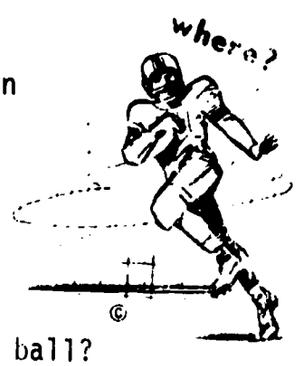
Therefore, we can define communication as the act of conveying an idea through the use of signs and symbols for the purpose of affecting behavior.

Accurate Communications - Important?

Communication is used by us today without much thought. We have more means to communicate than ever before in history. Although we have an abundant amount of means to communicate, what use are they if we cannot communicate ideas correctly and accurately.

Did you ever ask a younger brother or sister to relay a message to your parents? Did the message turn out to be something other than what you wanted to communicate? If you only use verbal communication or spoken word, messages are often transmitted inaccurately. To have accurate communications most of the time - written messages should be used.

Do you think it takes accurate communication to play football? Sure, anyone can try to run with the ball to score a touchdown; but do you believe a player would have much success if the other players have not communicated about the play? Who is going to run the ball?



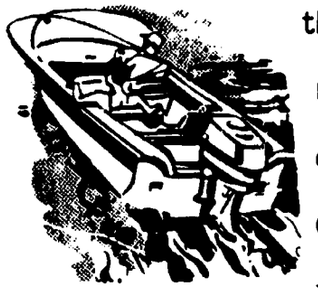
What is your assignment on the play? When is the ball going to be snapped? Where is the ball carrier going to run? How does each player perform his assignment?

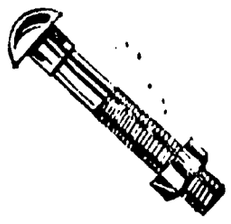
These are important questions you must be able to answer if your team hopes to have some success. They bring to light some essentials which must exist in order to have accurate communications: who, what, when, where and how.

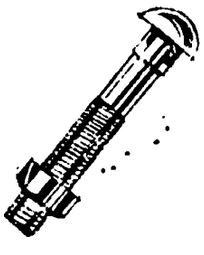
Civilization has required an increasing amount of communication between persons, between organizations and between governments. The fields of business and industry are no exception to this trend. Increasing complexities of manufacturing, ownership structure, and the system of laws and taxation demand that efficient methods of conveying a message from one person or organization to another be developed. Many misunderstandings and errors occur in business because the people concerned have not communicated accurately.

If you are communicating and do not answer the questions who, what, when, where and how properly, you may not be communicating accurately.

Suppose that you were working for a company in California and were in charge of material ordering. You received a requisition (order) from the production manager, and it stated that the company needed 10,000 special plastic fasteners to complete production of the speed boat windshields you are producing on contract. The materials must be obtained from a company in Ohio within two weeks. What must you do so your company can complete production by the contract date?







You must complete a materials order form accurately. First you must know what department needs the parts so they will be delivered at the right location (who). Secondly you must get the exact description of what you are ordering. (1 1/4" x 1/4" plastic stove bolt fasteners). Third, you must place on the order form when the fasteners are needed (by next week, rush, air mail). Fourth, you must locate the company and its address from your files of where you order the plastic fasteners. Finally you must decide how you are going to place the order. Should you mail the order or place it by telephone? By telephone will make it easier to meet your deadline.

If all of these steps are completed accurately, your company will probably receive the fasteners on time. But suppose you did not put the complete description of the fastener on the order. The company would not know what to send. Consequently this would delay the order. If any of the questions - who, what, when, where and how are not answered properly, the communications will not be accurate and delays will occur.

By now you see the effects of poor communication. You have experienced or seen how it is the cause of numerous mistakes which lead to wasteful use of our human and natural resources, wasted man power, wasted time and wasted materials which, to industry, means a big waste of money. Industry has a goal to produce with as little waste as possible; because it wishes to keep the production cost of its goods or services low and perhaps realize a greater profit.

Also because of competition, it is necessary to keep the waste cost down. Thus, good communication is necessary.

Coordinating Communications

A further step in developing acceptable communications is the proper coordination of communications. At times industry must be able to coordinate communications between man and man, man and machine, machine and man, and machine and machine. The purpose for such coordinating is so that the individual, company or business can accomplish the proper jobs correctly at the precise time in order to minimize costs and efforts. One of industry's main goals is to produce maximum quality products in the least amount of time at the cheapest cost. Following will be examples of the coordinating of communications between man and man, man and machine, machine and man and machine and machine.

Man and Man: This type of communication is our simplest and most often used. When we speak or write letters or notes we are communicating from man to man. Often man to man communications in industry are through written messages to avoid mistakes. The company wants you to produce so many of a particular part this week. It is important to coordinate in writing such communication throughout the company in order to get materials and products produced at the correct time.

Other examples of man to man communications are giving instructions to new employees, parents writing notes for their children to take to the store, ordering lunch at a restaurant, etc.

Man and Machine: Another means of coordinating communications that we often use is the communication between man and machine. At home as well as in industry, machines must be used to produce goods

and services. In order for these machines to produce products and services, man usually has to operate them. If we want to complete an assign-

ment and have it look neat, we often type it. In doing so, we communicate to a typewriter with our minds and fingers and produce type-written pages. Other examples of communication between man and machine may be operating a drill press, programming a computer, setting dials on heaters, turning on a lamp, etc. The list is endless in our technical society. The importance of coordinating this communication is so the machines will produce when man needs their services.

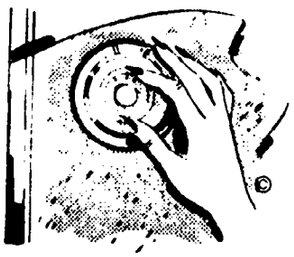
Machine and Man: A third common means of communicating is between machine and man. This is usually done when the machine wants to give you

some information on how it is functioning or gives back information which man once gave it. A common example of a machine communicating to man is the record player. Man originally recorded his voice on a record, but now the machine picks up mans voice and transmits it back so he hears it.

In industry a machine will often make unusual noises to let the laborer know it needs to be oiled or repaired. Other examples of machines communicating to man would be tape players, alarm clocks, warning lights, gasoline guages on cars, and adding machines. Here again the list is endless in our industrial society.

The reason why we want machines to coordinate communications with man is so we obtain answers, services, or information when we need it. This will save time and efforts of man.

Machine and Machine: This type of communications did not exist until recent years. Generally it is thought of in the computer industry where one machine tells another machine to perform a task. A term we often relate to this process is cybernetics, one machine running another.



Though machine to machine communications often refer to computers, there are other common means of this type of communication. The temperature controls, thermostats, on furnaces and air conditioners are examples of machines communicating to machines. Here the thermostats regulate the temperatures of rooms and buildings. You set the temperature you would like in your home on the thermostat, and it automatically turns the furnace or air conditioner on and off to keep the room at this temperature.

Other examples of machine communicating to machine are timer shut-off switches on ovens and stoves and overheating switches on machines. The reason again for coordinating communications between machines is to get things done when you need them. Also coordinating communications can save equipment by shutting machines off when they do not need to be running.

Example of Coordinating Communications (Design System). The following is an example which will demonstrate how communications can be coordinated between man and man, man and machine, machine and machine, and machine and man. During the school year, you are supposed to go to school every day. The principal or teacher tells you (written or verbal communications, man to man) that you have to be at school at a certain time each day. So, in order to keep on the good side of society, you go home and tell your parents

that you have to be at school early each morning (verbal communications, man to man). At night you or your parents set the alarm clock to get you up in the morning (man communicating to machine). In the morning the clock makes the alarm ring (machine communicating to machine, mechanically) to waken you. The alarm rings to waken you (machine communicating to man) so you can go to school on time. If any steps are omitted, the communications will not be coordinated and probably you will be late for school.

Can you think of other systems where man and/or machine communicate to each other?

Activity: Communications - I - 1A

Name _____

Period _____

Directions: Using examples of communications (sketches, photographs, pictures, etc.) and furnished supplies, design a poster which defines communications.

Activity: Communications - I - 1B

Name _____

Period _____

Directions: In the space below, write the definition of communication from three different sources. Then combine the three definitions into one that you can understand and use.

Activity: Communications - I - 1C Name _____

Period _____

Directions: Using the definition of communication which you have developed, discuss it with an older friend or relative to see if you can explain it to them.

Older friend's or relative's signature: _____

Comments: What did you understand or not understand of the definition of communication.

Activity: Communications - I - 1D

Name _____

Period _____

Directions: Before class, select four (4) other class members and obtain communications materials I - 1D from the instructor. Have the group and yourself sit at a table. Instruct the other members of the group that there will be no talking, but non-verbal communicating (hand signs, writing notes, etc.) can be used. Give each group member an envelope and tell them to open the envelope and read the directions.

Group member's signatures: _____

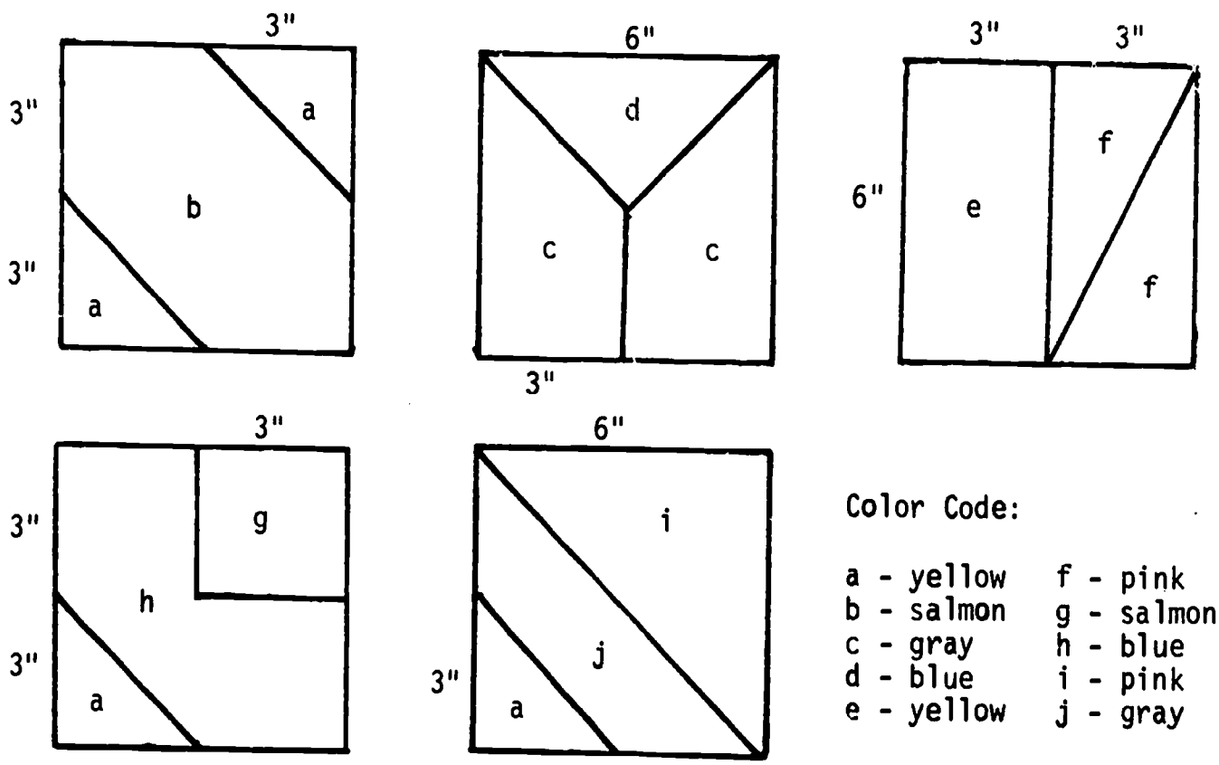
_____

Write comments of how you saw that it is important to communicate below.

INSTRUCTORS HANDOUT:

Communication Instructional Materials - I - 1D

1. Prepare the following cardboard squares for the student activity.



When doing this use the color code listed above. Do not write letters on the sections of cardboard.

2. Instruction sheet to be placed in envelope:

Dear student,

This activity is designed to help you understand what communication is. After completing the activity you will realize why it is so important to be able to communicate to other people and friends.

You are not to talk, but you may make hand signals to other in your group.

Your goal is to build a complete square - 6" x 6" by putting

the cards located in your envelope together. When you begin, you do not have the necessary pieces to complete a square. You must obtain the correct pieces from other members of the group; remember, no talking.

To obtain your pieces to complete the square, first study your parts to see what you have and what is missing.

Then take turns by going around the table clockwise, starting with the student who passed out the activity and use signals to obtain the pieces you need. You can only get one piece per turn.

See who can complete the square first.

When finished, help the student who started the game write what is important about communications.

3. You should label envelopes with letter "A" through "E". Place an instruction sheet into each envelope and also the following card sections into the corresponding envelopes: A (e,i,h); B (c,a,a,a); C (a,j); D (d,f); and E (f,c,g,b).
4. These five envelopes should be labeled "Communications - I - 1D."

Activity: Communications - I-1E Name _____

Period _____

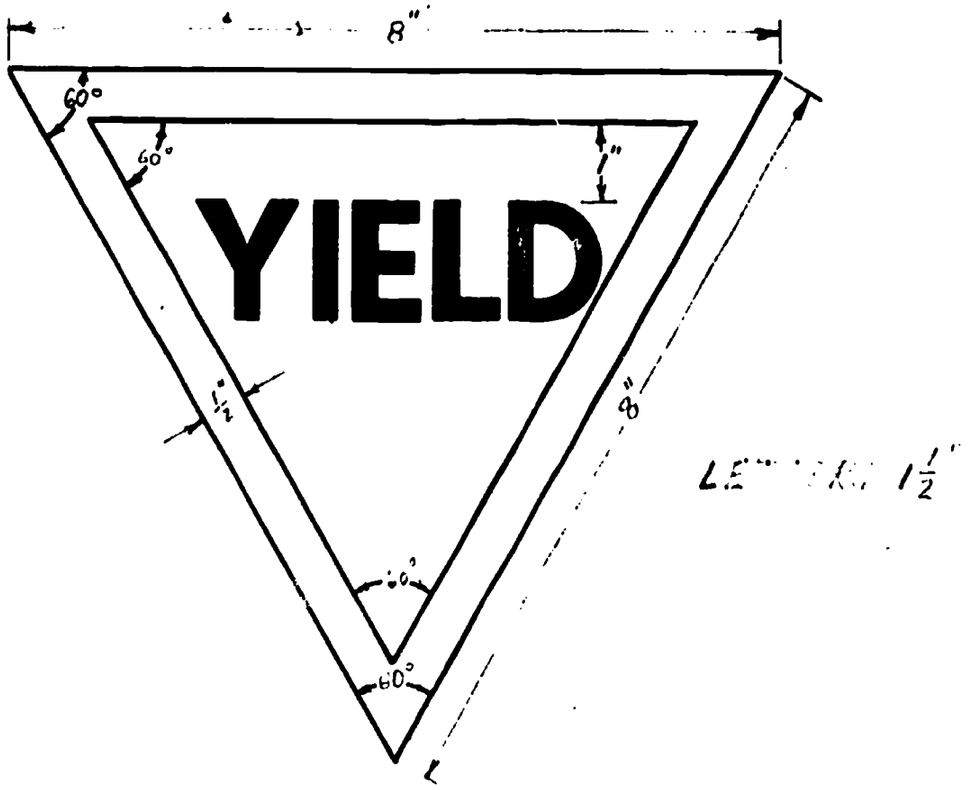
What is Communication?

Materials:

1. 8" x 7" x 1/4" masonite
2. Jig saw or other
3. Rule
4. Pencil
5. File
6. Sanding block
7. Can of yellow spray paint
8. Can of black spray paint
9. Masking tape
10. Can of black paint
11. Small paint brush
12. 60° triangle

Procedures:

1. Lay out the following pattern of a yeild sign on your sheet of masonite.



2. Cut the outside measurements of the yield sign using the jig saw. Ask your teacher for permission. Wear your safety glasses. After you have the triangle cut, lable your name on the back.

3. Using a file, slightly round the three pointed corners.

4. Smooth the edges you have cut with a sanding block.

5. In the spray booth (using the can of plack spray point), spray the outside edges and the 1/2" perimeter you have drawn on the sign. Don't be afraid if you spray past the line. Do not put too much paint on the surface. It will take too long to dry.

6. Let this dry over night.

7. Using the masking tape, cover the outside 1/2" border of your sign. Make sure that you are putting the tape on straight. This will be along the 1" line you previously drew.

8. Using the can of yellow spray paint, spray the remaining portion of the sign. Remember to spray lightly and apply a couple of coats.

9. Allow to dry over night.

10. Slowly remove the masking tape. Be careful that the paint does not peel off.

11. Draw the letters "YIELD" on the sign using a rule and pencil.

12. Using the masking tape, go around the letters. This makes them easier to paint.

13. Carefully paint the letters using a small brush and the can of black paint.

14. Allow this to dry over night.

15. Carefully remove the masking tape.

16. Hand the sign into your instructor for teacher evaluation. Along with this, answer the following question on notebook paper.

    Question: How is this sign used to communicate.

    (Label this paper with your name, period, and activity number.)

Activity: Communications - I-1F

Name _____

Period _____

What is Communications?

Materials:

1. The remainder of this sheet of paper.
2. Pencil (colored pencils may also be used).
3. A scale

Directions: Suppose you meet a new friend at school. You would like to have him or her visit you on the weekend, but your new friend doesn't know where you live. On the remainder of this side of the paper, sketch a map from school to your home. Be sure it is neat and communicates the message to your friend.

Question: How does this map fit into the definition of communications.

Activity: Communications - I - 2A

Name _____

Period _____

Directions: Design a poster which implies a means of communicating. This poster should consist of two parts: First an example of a failure to communicate accurately; and secondly an example which corrects the first situation to obtain accurate communications. See the following example:

WRITTEN WORD IS A MORE ACCURATE MEANS OF COMMUNICATING THAN SPOKEN WORD

Activity: Communications - I - 2B Name _____

Period _____

Directions: After school talk to someone in business, industry or public service (banker, bookkeeper, waitress, draftsman, printer, secretary, etc.) who you feel that their jobs require accurate communication. Ask these people what problems they have had that involved inaccurate communications. List these problems below.

Activity: Communication - I - 2C

Name _____

Period _____

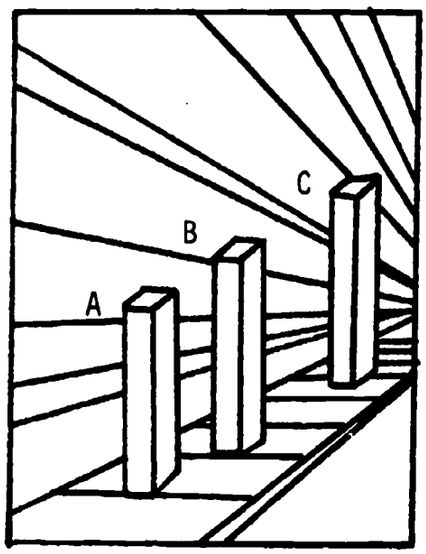
Directions: In the space below, write a five sentence paragraph describing a machine in the classroom. During class collect five students together, whisper what you have written down to the first student and have him till it to the next student, and him to the next student, and so on, until the fifth student repeats it to you. Compare this to what you have written below . . . Below your paragraph, list some reasons why it is important to communicate in writing and not by voice.

Activity: Communications - I-2D

Name _____

Period _____

Directions: Answer the following problems.



(a) object A is bigger than B is bigger than C

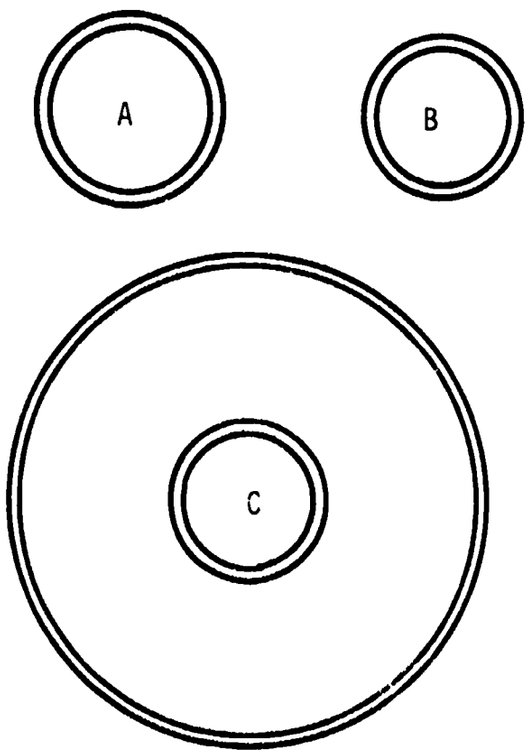
(b) objects A, B and C are of equal size

(c) object A is smaller than B which is smaller than C

(a) circle "A" is bigger than "B" which is bigger than "C"

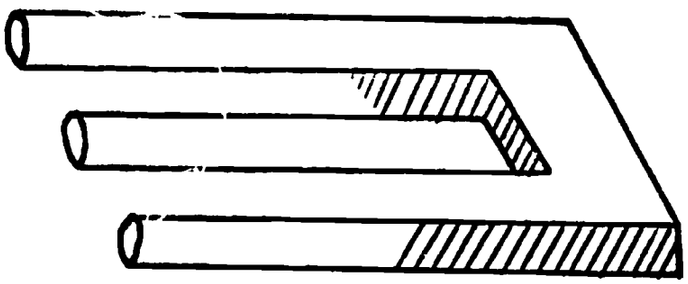
(b) circle "B" is equal to circle "C"

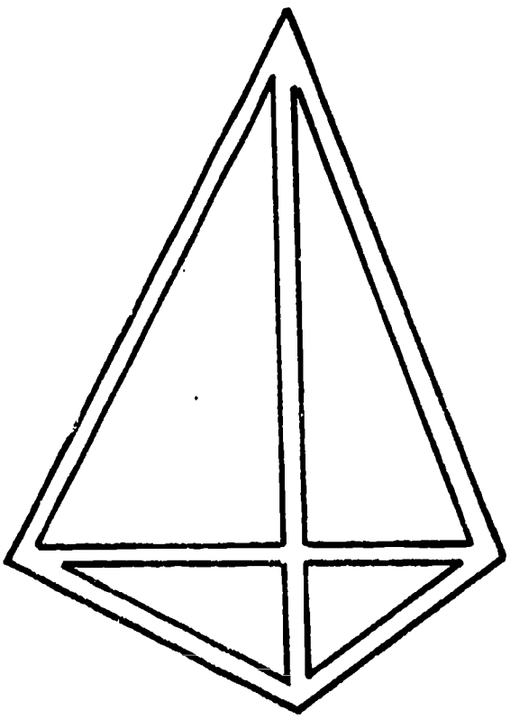
(c) circle "B" is equal to circle "A"



This is a drawing of a three-pronged object beginning at the left.

__ T __ F





This is a kite.

__ T __ F

Question: Explain why these pictures are poor examples of communicating ideas.

Activity: Communications - I-2E Name _____

Period _____

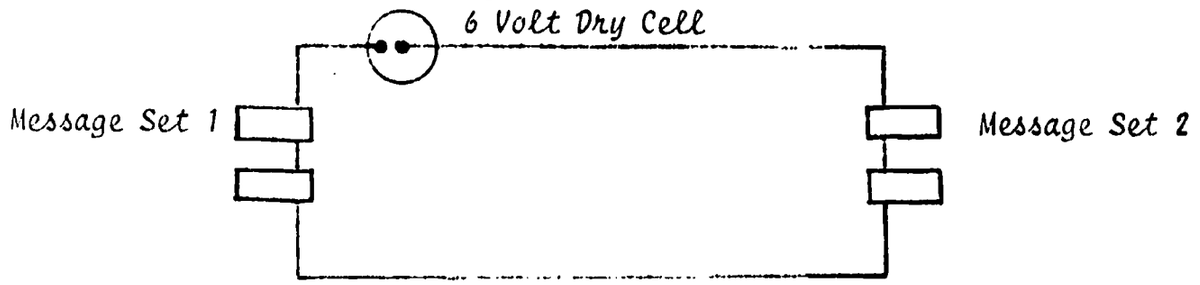
Accurate Communications

Materials:

1. Two sets of telegraph keys or message buzzers (see directions for constructing message buzzers at the end of this activity).
2. A copy of the morse code.
3. A message you wish to send to a friend.
4. 6 volt dry cell
5. Approximately twenty feet of connecting wire.

Procedures:

1. Get a friend in class who you would like to send a message to.
2. Complete the following circuit.



3. Write the message you wish to send to your friend. Don't let him see it.
4. Use the Morse code located in this package to send the message. Cut the page in half. Give half to your friend so he can de-code the message.
5. Send the message.
6. Return the equipment.
7. Get a copy of the message your friend has de-coded.

Question: From your experience with the Morse code, explain what you observed concerning accurate communications.

Morse Code

A	. _	N	_ .
B	_ . . .	O	_ _ _
C	_ . _ .	P	. _ _ .
D	_ . .	Q	_ _ . _
E	.	R	. _ .
F	. . _ .	S	. . .
G	_ _ .	T	_
H	. . . .	U	. . _
I	. .	V	. . . _
J	. _ _ _	W	. _ _
K	_ . _	X	_ . . _
L	. _ . .	Y	_ . _ _
M	_ _	Z	_ _ . .

A	. _	N	_ .
B	_ . . .	O	_ _ _
C	_ . _ .	P	. _ _ .
D	_ . .	Q	_ _ . _
E	.	R	. _ .
F	. . _ .	S	. . .
G	_ _ .	T	_
H	. . . .	U	. . _
I	. .	V	. . . _
J	. _ _ _	W	. _ _
K	_ . _	X	_ . . _
L	. _ . .	Y	_ . _ _
M	_ _	Z	_ _ . .

Buzzer

Directions: Item Construction (refer to drawings on pages 5, 6, 7 and 8.)

Coil: A. Insert one masonite disk on 1/4" x 20 screw.

B. Wrap masking tape around screw so that 3/4" length of the screw is covered by the tape.

C. Insert second washer, with two holes, on the screw, and screw nut behind second washer to hold in place.

*Check Point #1 - Make sure a 3/4" space exists between the two masonite disks and that all the metal of the screw, in the 3/4" area is covered by masking tape.

D. Starting from the inside of the masonite disk with the drilled holes, insert one end of the wire between the two disks and through one of the drilled holes in the bottom masonite disk. Pull about 6" through. Wind the remainder of the wire around the bolt. When there is only about six inches of the wire left, insert the end through the second hole (see coil drawing).

E. Remove nut, thread ends of coil wire through base holes 2 and 4, insert coil bolt through base hole #1.

*Check Point #2 - Make sure the two small holes of the bottom disk line up with the holes drilled in the base. Check to make sure the wires are not pinched between the disk and the base.

F. Assemble nut onto bolt but do not over-tighten.

G. The end of the wire that was inserted down through hole #2 should now be inserted up through hole #3, the wire protruding from hole #4 should be inserted up through hole #5.

*Check Point #3 - Check wire running from holes 2-3 and 4-5, make sure the wire is laying in the groove so buzzer will sit flat.

Clapper:

H. Bend clapper as shown in drawing.

I. Punch holes in clapper as indicated.

J. Assemble clapper to base in specified position, use wood screws.

K. Wrap the wire protruding from hole #3 around the screw that holds the clapper down, and is nearest hole #2.

*Check Point #4 - Scrape varnish from ends of wire before assembling to screws or bolts. Do not leave too much slack.

Terminals:

L. Insert terminal bolt through bottom of hole #6. Put one (1) washer over bolt.

M. Wrap wire from hole #5 around terminal bolt, put another washer over bolt and screw on nut. Do not over-tighten.

N. Insert second terminal bolt through bottom of hole #7. Put one (1) washer over bolt.

O. Slip piece of #12 wire over terminal bolt, put another washer over bolt, and screw on nut.

P. Adjust clapper so there is a 1/8" air gap between bottom of clapper and the head of the coil bolt.

Q. The piece of #12 wire should be bent so it touches lightly on the back of the clapper.

R. When clapper is pushed down to touch the head of the coil bolt, the piece of #12 wire should have an air gap between it and the back of the clapper. When clapper is released, #12 wire should again come in contact with the clapper.

S. Hook the two terminal bolts to a 6 volt lantern battery using #18 wire and alligator clips.

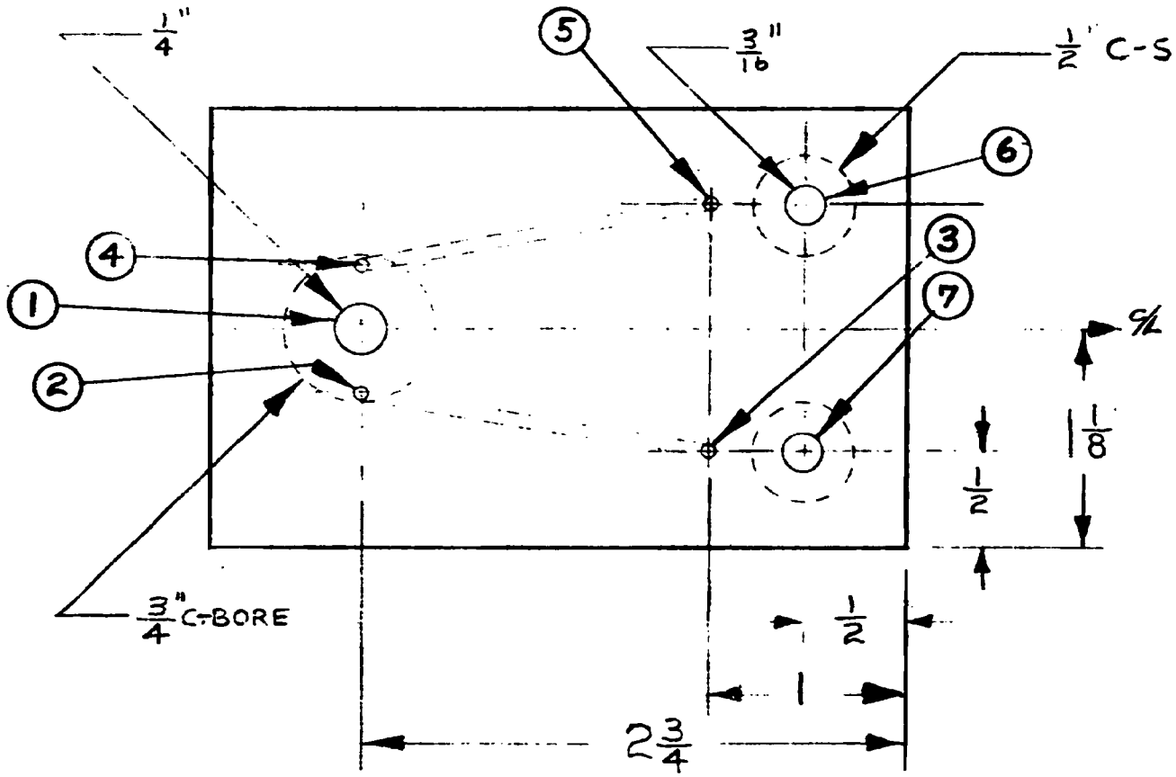
T. Adjust #12 wire for desired pitch.

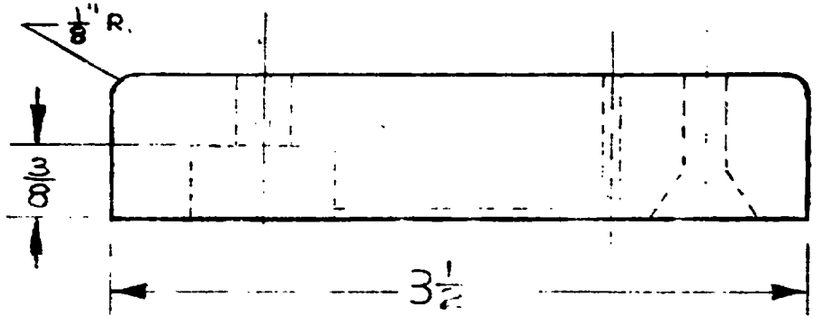
Material* List for Buzzer

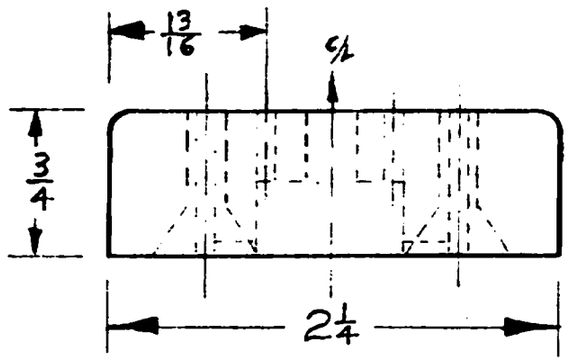
No. of Pieces	Item Description
1	2 1/4" x 3 1/2" x 3/4" pine
1	1 1/2" x 3" 28 gauge tin plate
1	3" - #12 insulated copper wire
1	25" - #22 varnished copper wire
2	3/16" x 24 flat head screws, 1" long
2	3/16" x 24 nuts
4	3/16" flat washers
1	1/4" x 20 round head screws, 1 3/4" long
1	1/4" x 20 nut
2	1/8" x 1" dia. masonite disks
2	#2 roundhead wood screws, 1/4" long
1	1/2" x 3/4" masking tape

* Material per buzzer

BUZZER BASE



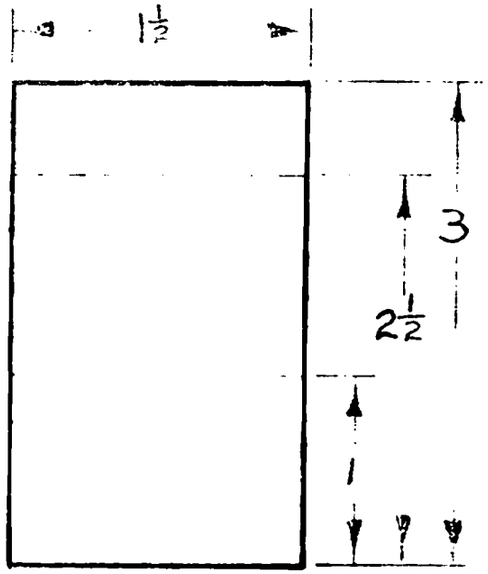




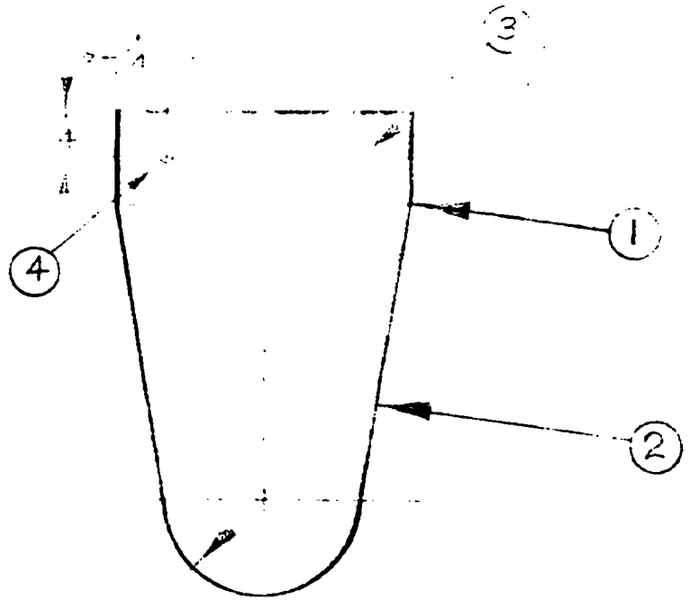
MATERIAL - PINE

PATTERN FOR CLAPPER
28 Gauge Tin Plate

A



B



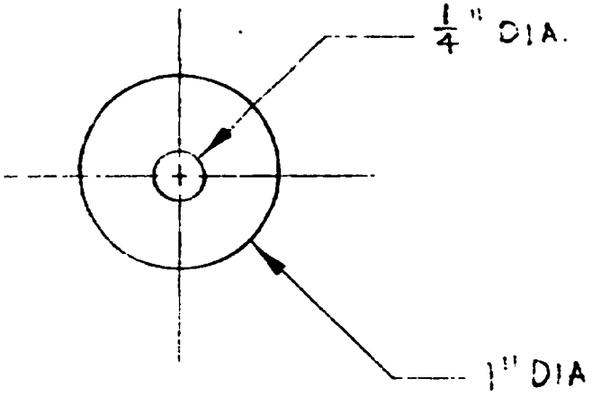
Bend on
dotted lines

A= Size of blanks

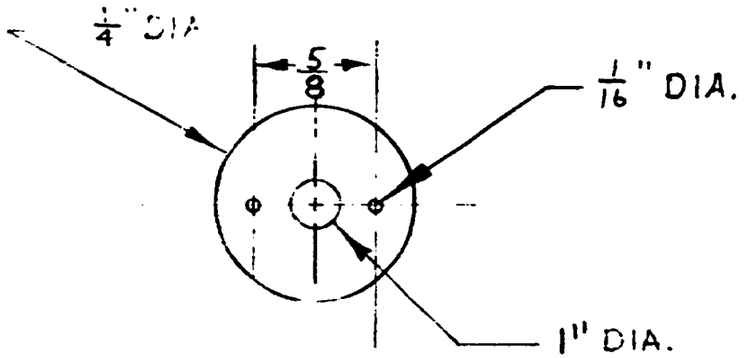
1" R

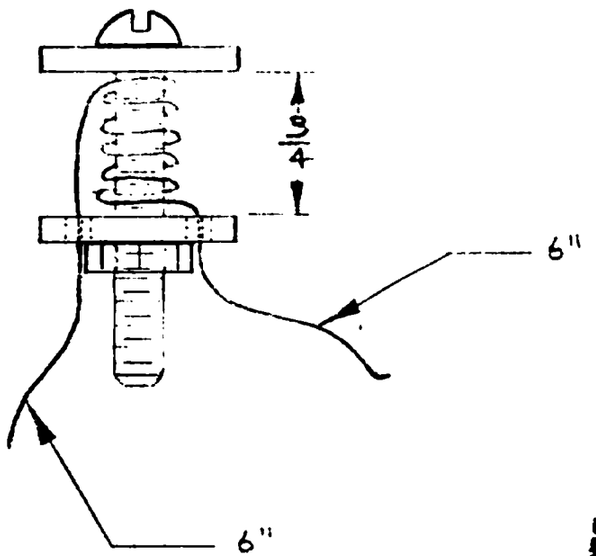
B= Finished size
(trace B on to masonite
and use for pattern)

TOP DISK

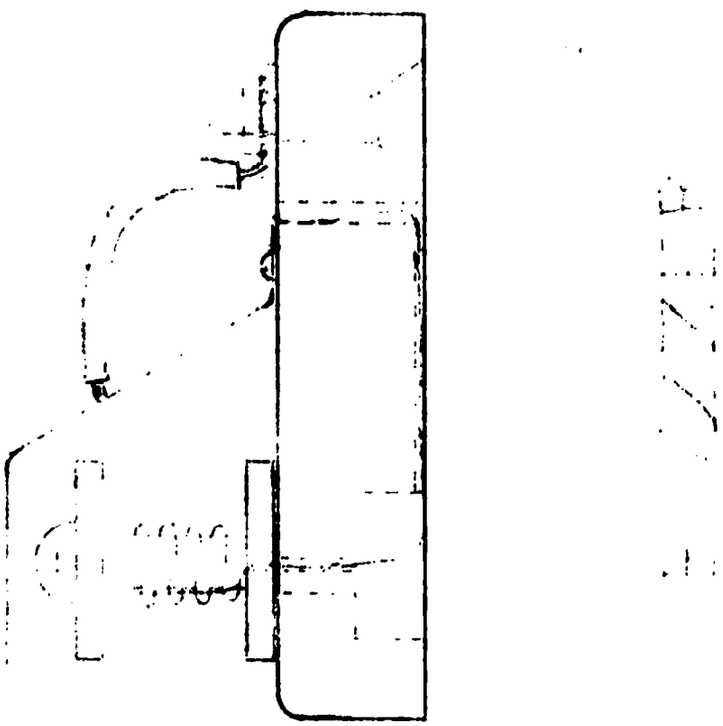


BOTTOM DISK





COIL ASSEMBLY



Activity: Communication - I - 3A Name _____

Period _____

Directions: In the space below, write a brief explanation of how communication takes place between man and man, man and machine, machine and man, and machine and machine with five (5) examples of each type.

Activitn: Communication - I - 3B Name _____

Period _____

Directions: Using magazines and other sources, collect pictures which illustrate each of the following types of communication: man to man, man to machine, machine to man, and machine to machine.

Activity: Communication - I - 3C

Name _____

Period _____

Directions: In the space below, design a communication system for each of the following (man to man, man to machine, machine to man, and machine to machine) and explain how each functions (sketches may be used). An example of man to machine would be turning on the switch of an electric mixer. Develop your examples so they will be easy to understand.

Activity: Communications - I-3D Name _____

Period _____

Coordinating Communications

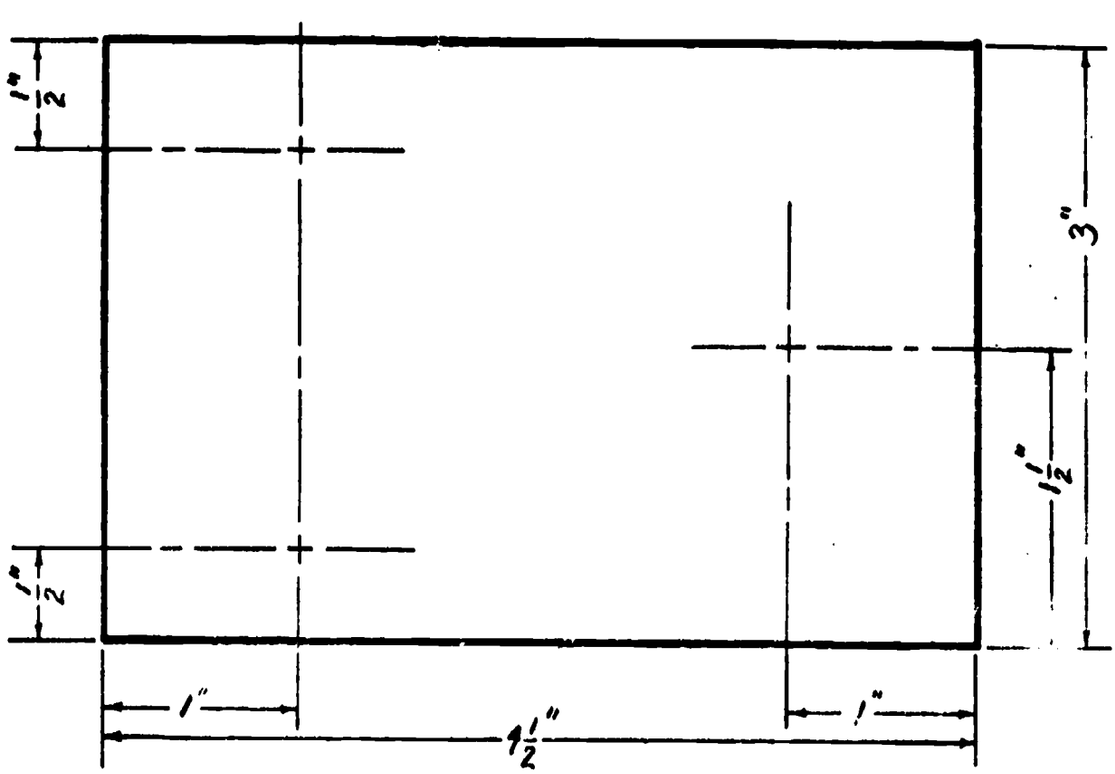
Materials:

1. Pine block 4 1/2" x 3" x 3/4"
2. 2 clips
3. 3" section of coated wire
4. 3 - 1/2" wood screws
5. 1 - 4" iron bolt
6. 1 - 5" x 1/2" brass or copper strip
7. 1 - 6 volt dry cell
8. 10' section of wire
9. Rule
10. Hand saw
11. Screwdriver
12. Pencil

Directions: Following you will find the procedures for making an electromagnet and push switch. Use the necessary materials and drawings.

Procedures:

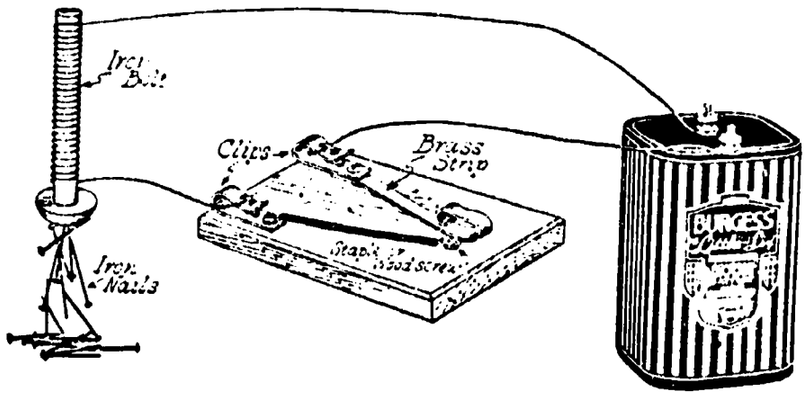
1. Layout the following 4 1/2" x 3" x 3/4" design on a piece of 3/4" pine stock.



2. Using a hand saw, cut the 4 1/2" x 3" block.

3. Layout the three centering dimensions to locate the screws on the block. Use a pencil and scale.

4. Assemble the push switch using the following diagram and necessary parts.



5. Construct the magnet by wrapping the wire around the iron bolt.

6. Hook up the magnet, switch, and battery.

7. Pick up some metal scraps.

Question: Below explain how the four types of coordinating communications take place in this activity.

Activity: Communications - I-3E Name _____

Period _____

Coordinating Communications

Materials:

1. Overhead projector
2. Overhead transparency of the Definition of Communications
3. Movie screen or wall

Procedures:

1. Obtain permission from your instructor to use the overhead projector.

2. Ask him for the overhead transparency of the Definition of Communications.

3. Turn on the machine and project the definition onto the movie screen or wall.

Question:

Using the above procedures as an example, explain how the four types of coordinating communications were used in this example (man to man, man to machine, machine to machine, and machine to man).

Student Evaluation

Communications - I

Name _____

Instructor _____

School _____

Directions: Answer all of the following questions to the best of your ability. The questions are written to evaluate your knowledge and understanding of the area of industrial arts covered in this package. Choose the answer which best completes the statement.

1. Which of the following is not required for an effective communication system?

   a. Sight
   b. Conveying Ideas
   c. Signs and/or Symbols
   d. Affecting Behavior

2. Which of the following is a means of conveying ideas:

   a. A statue
   b. Someone speaking
   c. A stop sign
   d. All of the above

3. One of your friends waves at you because:

   a. You are driving away in a car
   b. His arm fell asleep
   c. He has a message to convey
   d. All of the above

4. One communicates because:

   a. He wants his voice heard
   b. Life would be boring if he never talked
   c. He has skill in a language
   d. He wants people to know his ideas

5. The act of conveying an idea through the use of signs and symbols for the purpose of affecting behavior is:

   a. The definition of communications
   b. Often used by machines
   c. Important to industry and society
   d. All of the above

6. When we answer the questions - who, what, when, where, and how - what type of communications will we be executing?

   a. Coordinating communications
   b. Inaccurate communications
   c. Accurate communications
   b. None of the above

7. You should use which of the following to have accurate communications most of the time?

   a. Spoken words
   b. Signs
   c. Written words
   d. Pictures

8. When man is operating a saw to cut wood, what type of coordination of communication is being used?

   a. Man to man
   b. Man to machine
   c. Machine to machine
   d. Machine to man

9. When you are reading this test, what type of coordination of communication is being used?

   a. Man to man
   b. Man to machine
   c. Machine to machine
   d. Machine to man

10. Cybernetics is what type of coordinating communications?

   a. Man to man
   b. Man to machine
   c. Machine to machine
   d. Machine to man